BALLISTIC MISSILE DEFENSE ORGANIZATION

Open Systems Deployment Plan

30 August 1996

OPEN SYSTEMS DEPLOYMENT PLAN

1.0 Introduction

Historically, many weapon systems have been developed in closed environments that do not encourage use of many Commercial Off-The-Shelf (COTS) products and/or Non-Developmental Items (NDI). The use of proprietary hardware and software by systems developers was (and still is in some cases) the norm. This approach has led to increased life cycle cost of systems and a missed opportunity to capitalize on openly developed advanced commercial technologies and products. Including open systems products in a system design is a means of implementing the recommendations of Department of Defense (DoD) Technical Architecture initiatives. The Joint Technical Architecture (JTA) Version 1.0 provides a basis to deploy an open systems approach and should be referenced during all phases of system development.

1.1 Purpose

This plan supports the DoD initiative to implement open systems concepts and to use open systems specifications and standards for weapon system acquisitions to the greatest extent possible. This plan will also describe the Ballistic Missile Defense Organization (BMDO) approach to use commercial performance specifications and standards in lieu of military specifications and standards wherever practical. Open systems concepts will be used in systems supporting National Missile Defense and Theater Missile Defense.

1.2 Vision

The acquisition and deployment of increasingly capable missile defense systems both at home and abroad is BMDO’s primary mission. While accomplishing this mission, BMDO will strive to achieve the vision of open systems by “establishing within Ballistic Missile Defense an open systems approach as the foundation for all weapon, sensor, BMC4I and information technology system acquisitions in order to lower life cycle costs and improve system performance. This approach complements Service open systems initiatives.” In achieving this vision, program managers and acquisition decision authorities must continue to ask the question, “Are the decisions being made ensuring that the widest range of suppliers have an opportunity to offer their products throughout the program’s life cycle?”

1.3 Scope

This plan outlines the actions BMDO will take to implement the open systems concept within the organization and will describe BMDO’s goal of taking advantage of potential cooperative efforts with the Service Executing Agents and industry. These actions will seek to increase appreciation and foster a better understanding of the open systems concept and will provide the necessary tools for BMDO personnel to use the open systems process. By taking these steps, BMDO hopes to build a consensus to move to an open systems based acquisition process where the open systems concept would be embodied within our standard policies and processes.

1.4 Background

Improving weapon system performance while decreasing life cycle costs is a challenge. However, this challenge can be met by using commercial products that capitalize on the advancing technology of industry. Open systems concepts encourage the use of commercial products, processes, specifications and standards to enhance the pace of inclusion of new technology into weapon systems in a cost effective manner. Emphasizing the use of commercial products will reduce the cost and risk inherent in the design of new systems and will allow BMDO to concentrate on seamlessly integrating its systems.

2.0 Policies And Processes

Our current policies and processes will be reviewed for adherence to the open systems concept. Where necessary, policies and processes will be modified to encourage the transition to an open systems based acquisition process. BMDO will issue interim guidance, consistent with the direction provided by the Open Systems - Joint Task Force (OS-JTF), to ensure progress toward implementation of the open systems concept. BMDO will implement the JTA and extend it as necessary for BMD systems.

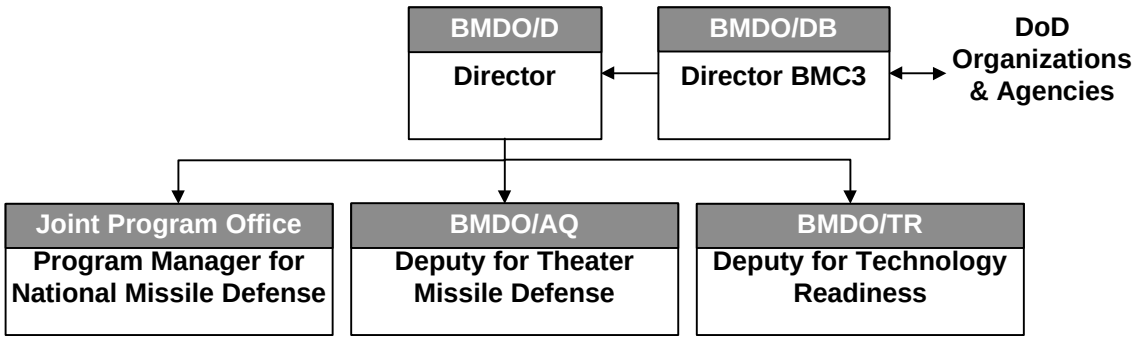
3.0 Management Structure And Responsibilities

The BMDO Director will be the office with single oversight authority for weapon systems open systems implementation. The Director, BMC3 (BMDO/DB) will be the single BMDO point of contact on all matters concerning open systems acquisitions in coordination with the BMDO Chief Information Officer (CIO). (See figure below.)

The Joint Program Office (JPO) for NMD will report directly to the Director on all matters concerning open systems acquisitions. Furthermore, the JPO will establish, administer, and execute open systems policy for the acquisition of a National Missile Defense. These policies will compliment those of BMDO.

The Deputy of Acquisition for Theater Missile Defense will report directly to the Director on all matters concerning open systems acquisitions. BMDO/AQ (in cooperation with the Service Executing Agents) will be responsible for establishing, administering, and executing open systems policy for the acquisition of Theater Missile Defense Systems. Furthermore, BMDO/AQ will be responsible for coordinating with Service Acquisition Executives on all programs that have overlapping developmental responsibilities to ensure that an open systems approach is being pursued in areas of BMDO responsibility.

The Deputy for Technology Readiness will report directly to the Director on all matters concerning open systems acquisitions. BMDO/TR will be responsible for establishing, administering, and executing open systems policy for all technology readiness development programs. Although these programs are generally not acquisition programs, the benefits of establishing an open systems philosophy early in the development process will yield cost saving and performance benefits if and when a program enters into a formal acquisition.



BMDO Open Systems Management Structure

3.1 Policy Enforcement

Enforcement of the open systems Acquisitions policy will be the responsibility of the BMDO Director. BMDO/DB will work closely with the Program Manager for NMD, the Deputy for TMD, and the Deputy for Technology Readiness to establish a process to monitor and assess individual weapons systems' progress toward deployment of the open systems Approach. Semi-annual update reports on the status of deployment of the open systems Approach will be made available to USD(A&T).

4.0 Review Process

BMDO weapon systems will be reviewed to evaluate their openness and to determine applicability of open systems concepts. Open systems implementation will be included in System Design Board reviews of all programs. Legacy systems for which open systems concepts are not applicable or cost effective will be exempt or issued waivers; remaining systems will be reviewed for open systems applicability to determine the degree of open systems implementation appropriate. As legacy systems are upgraded, they will again be reviewed for incorporation of open systems concepts. The goal of this process is to achieve the greatest possible implementation of open systems concepts without degradation of system performance.

5.0 Training And Education

BMDO will educate and train its acquisition staff on the benefits of open systems Acquisitions through attendance at the Open Systems for Executives and the introductory "Promise and Pitfalls" courses currently being offered by the OS-JTF. An attendance schedule will be prepared to fill all student allocations assigned to BMDO.

6.0 Feedback

Feedback on the implementation process is necessary to assess the status, success, and degree of openness being attained and should be part of the implementation process. Before establishing recording and reporting requirements feedback must be evaluated to determine its value-added. This area will be addressed through the use of a "lessons learned process," as outlined in the OS-JTF charter and vision.

7.0 Joint Service Opportunities

BMDO's unique role within the DoD will offer many opportunities to jointly develop weapon systems with the Army, Navy and Air Force. All new BMDO sponsored Joint Service weapon programs will initiate an open systems approach early in the weapon systems' developmental life. Furthermore, BMDO will work with the Services to assess legacy weapons systems that are being jointly developed for applicability to the open systems approach. Where appropriate, and where cost savings and performance benefits are believed to be likely, these legacy systems will migrate toward the open systems approach.

8.0 Industry Participation

Open systems benefits can best be attained through a comprehensive industry/Service understanding of weapon system needs and the technology and systems that are currently available, either in commercial markets or fielded military applications. Recent acquisition programs have begun to implement this approach by requesting that industry participate in defining new system requirements and proposing system solutions rather than simply designing a specified system. This interaction will continue to evolve as acquisition programs migrate from rigidly defined specifications and standards to program teams for specific acquisition programs.

9.0 Current Programs

Open systems concepts are already being incorporated in the NMD BMC3 program. Prior to awarding the BMC3 development contract, BMDO awarded proof-of-concept contracts to Martin Marietta, Raytheon, and TRW to provide the government with Integration Development Options Assessments. Each of the three contractors addressed open architectures, COTS/NDI software, common applications, and other open systems approaches in their feasibility assessment and demonstration of the options to develop and integrate BMC3 and the other components of the NMD system. The NMD BMC3 development contract was subsequently awarded based on the results of these options assessments and the proposed approaches to open systems development.

Open systems concepts will be incorporated into all new programs and technology efforts as they are defined.

10.0 Resources

Existing resources within BMDO/DB, BMDO/AQ, BMDO/TR, and the NMD JPO, supplemented by SETA and FFRDC personnel, will be used to implement the actions specified in this plan.

11.0 Milestones

15 October 1996 - Initial Progress Report

15 October 1996 - Initial NMD Program Assessment

January 1997 - Initial BMD Program Assessment

12.0 References

12.1 OUSD (A&T) Memorandum, Acquisition Of Weapons Systems Electronics Using Open Systems Specifications And Standards, 29 November 994

12.2 Open systems-Joint Task Force, OUSD(A&T) Vision Statement, 11 March 1995

12.3 DoD Joint Technical Architecture, Version 1.0, TBD